Practical Work 02 (Linked Lists)

Objectives: Mastering with operations on Liked Lists.

Exercise 01

Write a C program that take the class semester points of n students as input of a linked list where the student names and notes are added in sequence then write the following modules:

1. Delete student without notes (null) then compute the new student number.
2. Compute the average points of the class.
3. Compute the number and the rate of students who get points great than 10 and print their names.
4. Print all student names where there name start with a given character.
5. Sort the list by student names ascendant.
6. Sort the list by notes descendant.
7. Add new student while respecting the sort.

Exercise 02

A linked list contains names in string and dates:

1. Write a C program to implement and fill this list structure.
2. Write a module to remove the duplication (same names and dates).
3. Write a C module that return the intersection of three lists.

Exercise 03

A linked list contains integers:

1. Write a C program to implement and fill this list structure.
2. Write a module to rotate the list by K position.

Exercise 04

1. Write a C program to implement and fill a double linked list.
2. Write a module to add an element in the previous list (at beginning of list and end, and at specific position).
3. Write a module to remove an element in the previous list (at beginning of list and end, and at specific position).

Exercise 05

1. Write a C program to implement and fill a circular linked list.
2. Write a module to add an element in the previous list (at beginning of list and end).
3. Write a module to remove an element in the previous list (at beginning of list and end).

Exercise 06

1. Write a c module that check if a linked list is a palindrome.
2. Using the previous module write another module that return the maximum palindrome of a linked list.